# Makin Organs

## User Manual - MIDI Sequencer +

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# 1. Introduction

We hope that you enjoy the use of your MIDI sequencer plus. It is compatible with any MIDI device although it is primarily for use with Johannus and Makin organs.

This manual describes the installation and operation of the MIDI Sequencer Plus and provides information on how it works with other MIDI devices.

If you are an owner of a Makin organ then you will be aware that some of the information in this manual is repeated from your Organ User Manual. This is intentional to save you having to refer back to another manual and for other users to have access to the information

# 2. Care of your MIDI Sequencer

To get the best out of your MIDI Sequencer please take care by doing the following:

- Keep it in a dry place, well away from any damp areas.
- Clean it with a lint free cloth
- Keep it away from liquids or any chance of accidental spillage.
- When in use, place the sequencer on a flat stable surface or use the (optional) wooden stand.
- Switch the MIDI Sequencer off when it is not in use.
- Switch the MIDI sequencer off before removing the SD card. (To prevent corruption of open MIDI files.)
- The MIDI sequencer may only be opened by a technician authorised by Johannus Organs. The MIDI sequencer contains static-sensitive components. The warranty is invalidated if the MIDI sequencer is opened by a non-authorised person.
- The MIDI Sequencer plus has internal connections to both the MIDI IN- and MIDI OUT-port pins 1 and 3. for future purposes. Please do not apply any kind of phantom power or signals to these pins. Doing so may damage the Sequencer. If you plan to connect equipment, which sends signals or applies power to pins 1 and/or 3 (and if that functionality cannot be disabled) please use MIDI cables that only carries wires 2, 4 and 5.

# 3. MIDI system

## 3.1. What is MIDI?

MIDI is the abbreviation for Musical Instruments Digital Interface. With MIDI, musical instruments can be coupled to each other, to a computer or to another MIDI device. The MIDI specification is produced by the MIDI Manufacturers Association. Further information can be obtained from their web site www.midi.org. The MIDI standard is partly based on hardware. In addition, it is a description of the way in which music and sound are translated into a digital format which can be communicated to other devices equipped with MIDI-functionality.

# 4. MIDI Terminology

The following table lists of some of the MIDI terminology that you may encounter. For more information consult the MIDI Manufacturers Association web site.

| Term | Description |
|---|---|
| Sequencer | A device for playing musical performances. The more sophisticated sequencers also record MIDI as well as other inputs and they will also allow editing of saved data. The most common sequencers are software computer programs running on Personal Computer hardware. There are many of these available ranging from the simple to very sophisticated. |
| Patch | A patch is the sound that a device can produce i.e. a musical instrument such as a piano, violin or drums. Patches are also referred to as “instruments, programs, algorithms or timbres”. Some devices contain multiple patches and the MIDI specification pre-defines a number of sounds allocated to patches. |
| Channel | Although there is only one physical MIDI connection between devices it is divided by the MIDI signals into 16 command slots known as channels. An instrument can generally be set to respond to one or all of the channels. |
| Multitimbral | An instrument, synthesizer or sound generator is said to be multitimbral if it is capable of producing two or more different instrument sounds simultaneously |
| Polyphony | The ability to play more than one note at a time. |
| Expander | A MIDI device that provides patches or other MIDI control function or a device that replicates data coming to a MIDI IN port to multiple MIDI OUT ports. |
| Voice | Are the qualities of an individual note or group of notes that give a particular timbre or sound. For example: a Trumpet or a Diapason |
| Synthesizer | A device for generating sound usually to emulate an instrument. Most modern synthesizers can create more than one instrument sound or voice and are often incorporated into sequencers for replaying sound files. |
| Controller | Is any MIDI input device that implements a function but does not sound a note as a direct result of its operation e.g. a piston, stop, expression peddle, switch, knob, etc. MIDI allows 128 controllers per device. Many of the controller functions are predefined by the MIDI specification. |
| Module | A device that can generate musical sounds. Typically a module will incorporate one or more patches but require external (MIDI) keyboard input to make them sound. Also referred to as an Expander or Synthesizer. |
| SysEx | System Exclusive MIDI messages. These are generally used by manufacturers to generate messages that the Standard MIDI system does not provide or to send a chunk of data in one message rather than using a lot of MIDI messages |
| Program Change | The MIDI message used to select an instrument, patch or program. There are 128 program changes available. |
| Bank Select | The MIDI message used to select an instrument patch or program on a device that has more than 128 patches. A device could have 128 programs with 128 banks of patches, programs, instruments or timbres. Note that your Makin instrument does not implement ‘bank select’. |

# 5. Installation

## 5.1. Connections

The connection points for the Sequencer are situated on the side together with the On/Off switch.

Warning

If you are connecting to a MIDI device that is not a Makin or Johannus organ. You are strongly advised to consult the manual for that device before proceeding.

To connect the sequencer to another MIDI device

1. Ensure the power is switched off on the the sequencer and on the other MIDI device to be connected
2. Connect the 9v connector to the sequencer and plug the associated mains adaptor into an electrical outlet.
3. Plug one end of the MIDI cables into the MIDI OUT socket and the other end of the cable into the the MIDI IN socket of the other MIDI device.
4. Plug the other MIDI cable into the sequncer MIDI IN socket and its other end into the MIDI OUT socket on the other MIDI device. Note that on Johannus and Makin organs MIDI OUT has been changed to MIDI SEQ.

## 5.2. SD Memory Card

Write Protect Tab shown in the unlock position

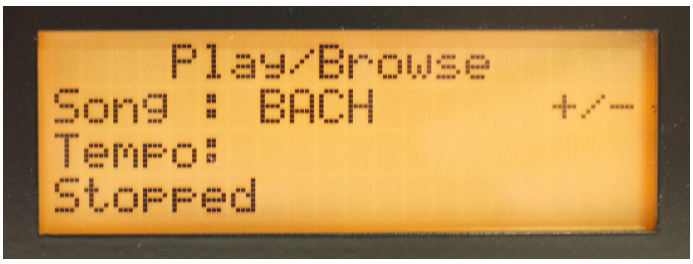
Diagonal Shoulder

The sequencer has a slot for an SD memory card. The memory card must be inserted in the slot before you use it otherwise the display will show a message that no card is present.

Insert the card

Note that:-

- The diagonal shoulder is bottom right nearest the push buttons and the contacts are closest to the edge of the sequencer.
- The protect tab is in the unlock position. (You will not be able to record if it is locked.)



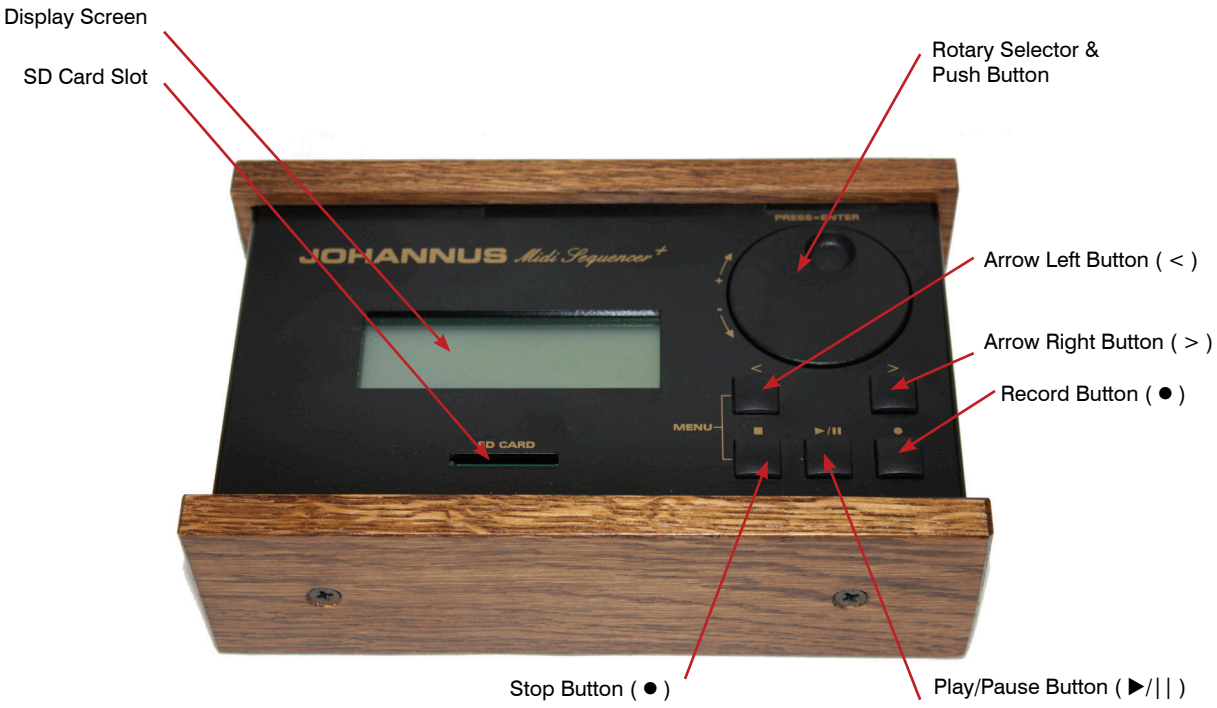

When the card is plugged in correctly the display will show a message:-

If a new card is plugged in the display will show a message:-

Pressing any key will cause the display to show the main menu. With a card installed the system should be working.

## 6. Controls

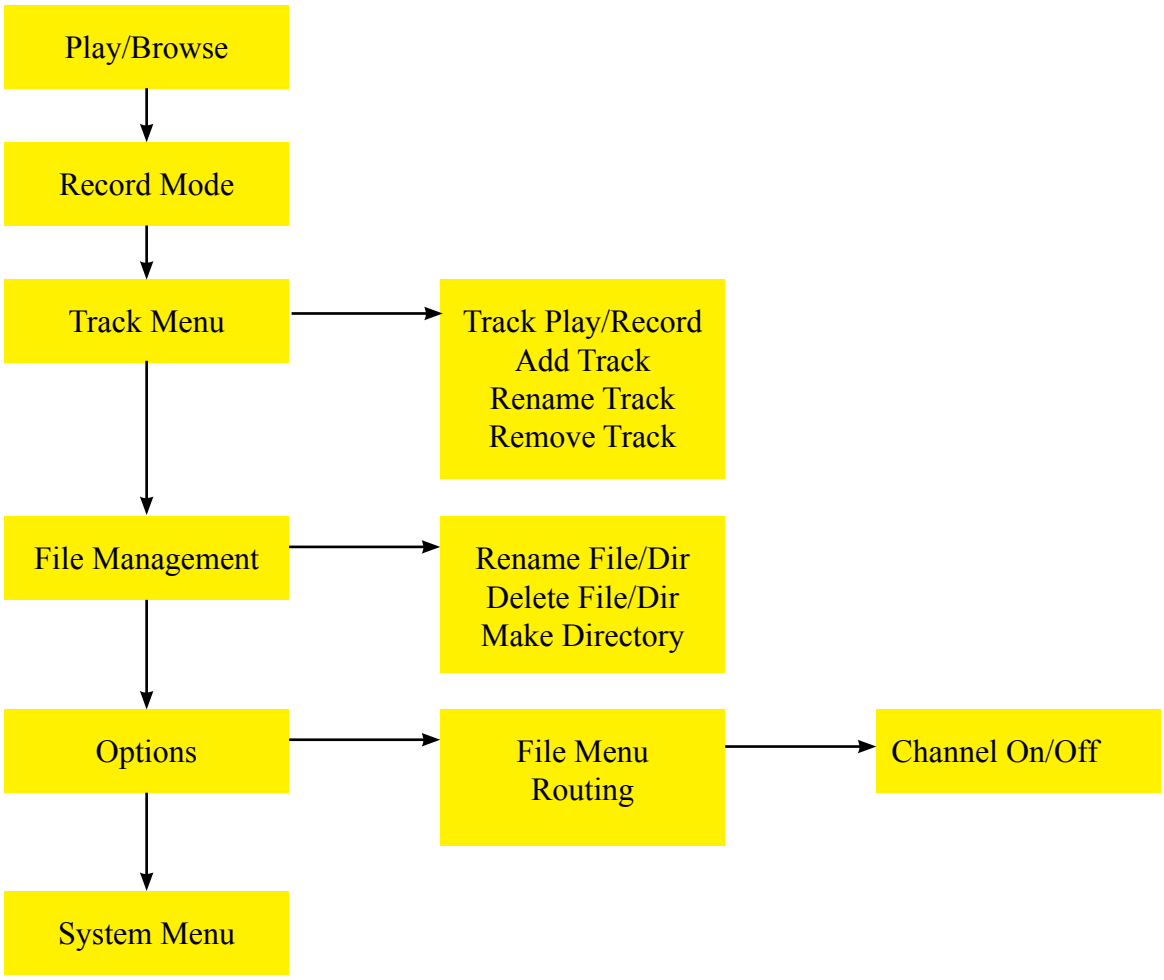
To access the main menu press the Stop and Left Arrow Buttons simultaneously.



# 7. Display Menu System

The display menu system allows the selection of the sequencer modes and provides information on the current status of the sequencer. The display defaults to Play/Browse mode at power up.

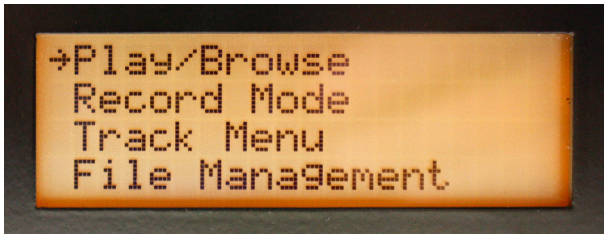
The menu system has the following structure:-




The rotary selector and push button is used to select items from the tree structured menu. Where other keys have functions that relate to the menu a message will be displayed on the screen to show the function. For example "exit: STOP select: RECORD" may be shown on the bottom of the screen meaning that the Stop (■) and the Record (● ) buttons have the functions Exit and Select respectively.

To bring up the main menu press the Left Arrow (<) and Stop (■) buttons simultaneously. Use the Rotary Selector to move the pointer to the required menu item then push the button to select.

- Play/Browse: shows the Play/Browse screen.
- Record mode: shows the Record Mode screen.
- Track Menu: shows the Track Menu screen.
- File Management: shows the File Management menu screen
- Options: shows Options menu screen.
- System Menu: shows the System Menu screen.



The Play/Browse screen will appear after the MIDI sequencer has been switched on.
To select screens through the key combinations:

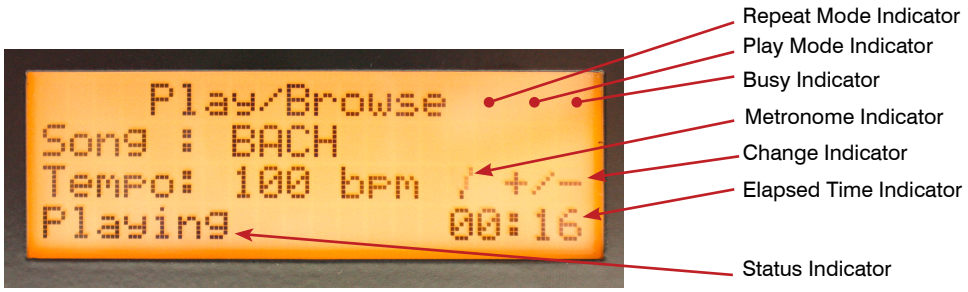
- Play/Browse Stop key + Play/pause key together.
- Record Mode Stop key + Record key together
- Menu Stop key + Left arrow key together

To select a screen through the main Menu

- Select the main Menu screen.
- Turn the selector to select a screen.
- Press the selector to go to the selected screen.

## 8. Play/Browse Screen

- Song: Shows the name of the selected MIDI file.




- Tempo: Shows the set tempo (beats per minute).
- Status Indicator shows the current status (Stopped/Playing/Paused).
- Repeat Mode Indicator:
  - Blank - Repeat mode not active.
  - R: Repeats the selected MIDI file.
  - RA: Repeats all MIDI files.
- Play Mode Indicator:
  - Blank - Default play mode.
  - HM: The selected MIDI file plays in the Hymn Mode.
  - PL: A playlist has been detected. The MIDI files are played according to the programming of the playlist.
- Busy indicator appears when MIDI sequencer is busy processing.
- Change indicator +/- shows behind the item that can be changed.
- Metronome Indicator: Shows the rhythm.
- Time Indicator: Shows the elapsed playing time.

## 8.1. Navigation in the Play/Browse screen

- Turn the selector to the right to go forward / downward.
- Turn the selector to the left to go back / upward.
- Press the selector to select the menu, directory or song.

Directories can contain the following content:

| | Content | Example |
|---|---|---|
| | MIDI song | RECO01 |
| | Subdirectory, which is marked by < and > | <SUBDIRO1> |
| | Back command. to leave the subdirectory | [BACK] |
| | Playlist, which is marked by [ and ] | [PLAYLIST] |

## 8.2. Play MIDI file

- Select the Play/Browse screen from the main menu
- Turn the selector to select a MIDI file.
- Press the Play/pause key. The MIDI sequencer starts playing the selected file.

Wait until stopped appears on the screen. The MIDI file has been played.

## 8.3. Play Hymn MIDI file

Playing the Hymn MIDI file is only possible when the Hymn Mode is active. (Hymn Mode can be set On or Off via the Menu system.)

1. Select the Play/Browse screen from the main menu.
2. Turn the selector to select a Hymn MIDI file. A Hymn MIDI file begins an l_ (intro) or a V (verse). The play mode HM is displayed on the screen.
3. When selecting an intro, the associated verse will start immediately after the intro has been played. When selecting verse, only the verse will be played.
4. Press the Play/pause key or the selector. The Hymn Mode screen appears. The MIDI sequencer starts playing the MIDI file.
5. Press the arrow keys to change the number of times that a verse is to be played.
6. Wait until stopped appears on the screen. The MIDI file has been played.

## 8.4. Play Playlist File

Playing the Playlist file is only possible if the Playlist Mode has been set to active via the Menu System. If Auto Playlist is ON, the sequencer will immediately go to the playlist, even if it is situated in a subdirectory.
The file name of the playlist has to be playlist.txt. Other file names are not allowed, because the sequencer will not find the playlist with another file name.

1. Insert an SD card containing a playlist into the SD card input. Browse to the playlist. The play mode PL appears on the Play/Browse screen.
2. Press the Play/pause key. The MIDI sequencer starts playing the playlist.
3. Wait until the music stops.

At a programmed stop in the play list:

- Press the Play/pause ( ▶/|| ) key to resume playing.
- End of play list appears on the screen: The play list has been played.

It is also possible to exit the play list. Turn the selector to the left until it says [ EXIT ] . Press the selector to exit the play list.

## 8.5. Options while playing

### 8.5.1. To stop playing

Press the Stop key ( ■ ).

### 8.5.2. To pause the playing

Press the Play/pause key ( ▶/|| ). Playing is interrupted.

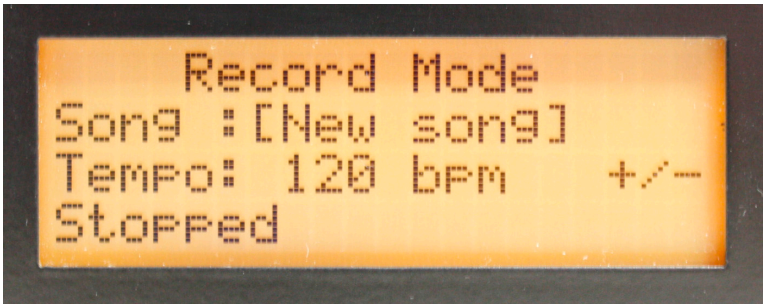
### 8.5.3. To restart playing

Press the Play/pause key ( ▶/|| )to start playing again or restart from a pause.

### 8.5.4. To change the Tempo

Turn the rotary selector to change the Tempo.

# 9. Record Mode Screen




The record mode screen can be accessed either via the menu system or by pressing the Record button ( ● ) while in Play Mode.
Record mode allows you to record what you play on the attached instrument keyboard(s).

## 9.1. Recording

### 9.1.1. To record:

1. On a Makin or Johannus instrument
   Change tempo with the selector (optional).
   Set the general volume of the organ.
   Set the expression pedal(s) of the organ.
   Program the required registration in preset on the organ (optional).
   Set all stops OFF (A reset with the 0 key can be used if required)
   On other instruments set the required settings
2. Press the Record ( ● ) key. The sequencer will go into Record Pause mode
3. The Sequencer waits for a MIDI event to occur. If you want to record silence at the beginning, press the Play/Pause key to start recording manually.

4. On a Makin or Johannus instrument
   Press the 0-piston (General Cancel) again for one second: the MIDI sequencer will record the settings of the general volume and expression pedals.
   Switch on the stops (manually or with a preset).
   On other instruments make appropriate settings you want recorded as MIDI activities
5. Play the piece of music on the organ or other instrument.
6. Press the Stop key ( ■ ). Stopped appears on the screen.

# 10. Track Menu

The Track Menu is a submenu for managing multitrack MIDI recordings. Options are:-

- [Back] returns to the Main Menu screen
- Track Play/Record
- Add Track
- Rename Track
- Remove Track

## 10.1. Track Play/Record

> Warning
>
> If the selected track already contains MIDI data, the data will be overwritten!

### 10.1.1. To Record a Track:

1. Select Track Play/Record from the main menu
2. Select a song with the rotary selector.
3. Select a track with the arrow keys ( < > ).
4. Make sure all stops are OFF.
5. Press the Record button ( ● ) to start recording the selected track while playing all other tracks.

### 10.1.2. To Play a Track

1. Select Track Play/Record from the main menu
2. Select a song with the rotary selector.
3. Select a track with the arrow keys. ( < > )
4. Press Play ( ▶/|| ) to play the selected track.

### 10.1.3. To Add a track

1. Select Track Play/Record from the main menu
2. Select the Add a Track screen from the sub menu
3. Select the song to which a new track will be added using the rotary selector.

4. Press the Record button ( ● ) to continue {or Stop ( ■ ) to cancel}.
5. Create name by changing selected character (underlined) with the rotary selector. Press the right arrow key ( > ) for the next character and press the left arrow key ( < ) to go back one character.
6. When finished, press the Record button ( ● ) to add the track with the given name or press the Stop Button ( ■ ) to cancel.

### 10.2. Rename a track

1. Select Track Play/Record from the main menu
2. Select the Rename Track screen from the sub menu
3. Select a song with the selector.
4. Select a track with the arrow keys.
5. When finished, press Record ( ● ) to continue or press Stop ( ■ ) to cancel.
6. Change selected character with the rotary selector. Press the right arrow key ( > ) for the next character and press the left arrow key ( < ) to go back one character.
7. When finished, press Record ( ● ) to continue or press Stop ( ■ ) to cancel.

### 10.3. Remove a track

1. Select Track Play/Record from the main menu
2. Select the Remove Track screen from the sub menu
3. Select a song with the rotary selector.
4. Select a track with the arrow keys ( < > ).
5. Press Record ( ● ) to remove the selected track or press Stop ( ■ ) to cancel

## 11. File Management

File management may be used to make a directory, delete a file or directory and rename a file or directory.

### 11.1. Rename File/Directory

1. Select the File Management screen from the main menu
2. Select Rename File/Directory from the sub menu
3. Select a song with the rotary selector.
4. Press Record ( ● ) to continue {or stop ( ■ ) to cancel}.
5. Change selected character with the rotary selector. Press the right arrow key ( > ) for the next character and press the left key ( < )to go back one character.
6. When finished, press Record ( ● ) to continue or press Stop ( ■ )to cancel.

## 11.2. Delete File/Directory

1. Select the File Management screen from the main menu
2. Select the Delete File/Dir screen from the sub menu
3. Select a file or directory with the rotary selector.
4. Press Record ( ● ) to remove the selected file or directory or press Stop ( ■ ) to cancel.

## 11.3. Make Directory

1. Select the File management screen from the main menu
2. Select the Make Directory screen from the sub menu
3. Select a character with the rotary selector.
4. Press the right arrow key ( > ) for the next character and press the left arrow key ( < ) to go back one character. The path in which the new directory is stored is shown at the third line.
5. Press Record ( ● ) to confirm or press Stop ( ■ ) to cancel.

# 12. Options

The Options sub menu enable certain functions of the sequencer to be set to a default condition as follows:-

## 12.1. Auto Playlist

(ON/OFF): Activates the Auto Playlist mode.

## 12.2. Hymn Mode

(ON/OFF): Activates the Hymn Mode.

## 12.3. Metronome

(ON/OFF): Activates the Metronome.

## 12.4. MIDI Forward

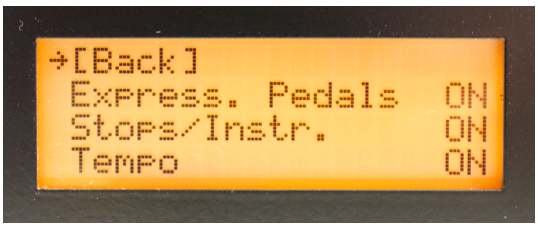
> Warning
>
> If MIDI In and MIDI Out are connected to the same instrument and MIDI forward is enabled ( ON ) then unpredictable results can occur such as flashing stop lights and draw stops moving in and out.

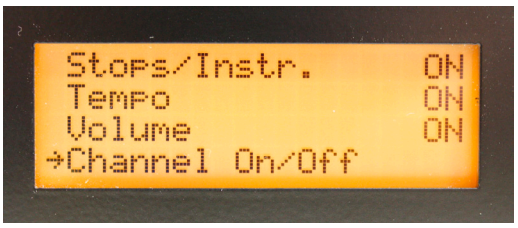
(ON/OFF): Redirects MIDI IN to MIDI OUT. This only works in the Record Mode while recording and in the stopped & MIDI Forward state.

## 12.5. Repeat

(ONE/ALL/OFF): ONE repeats the same MIDI file and ALL repeats all MIDI files.

## 12.6. Filter Menu



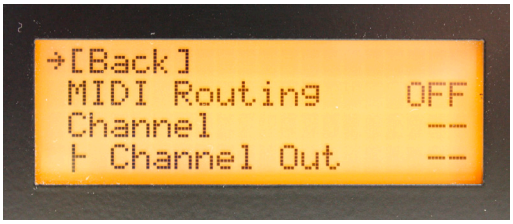



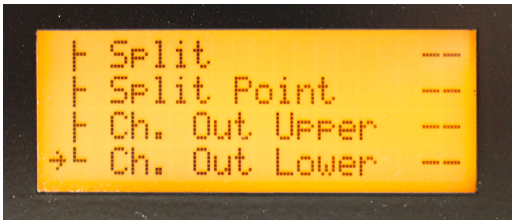

Selects to the Filter Sub-Menu screen.

[Back]: Returns to the Options menu screen.
Stops/Instr. (ON/OFF): Activates the stop and instrument changes.
Tempo (ON/OFF): Activates tempo changes.
Volume (ON/OFF): Activates general volume changes.
Channel ON/OFF: Selects the Channel ON/OFF screen.
Channel ON/OFF
[Back]: Returns to the Filter menu screen.
Channel 1-16 (ON/OFF): Activates the MIDI channels 1-16.
The channel ON/OFF mode relates to the original channels.
The channel ON/Off mode is active when playing a MIDI file and when forwarding MIDI data (MIDI Forward mode).

The setting of the MIDI channels does not have any influence on the record mode.

## 12.7. Routing Menu




Selects the Routing Sub-Menu screen.
[Back]: Returns to the opt ions menu screen.
MIDI Routing (ON/OFF): Enables MIDI routing to allow:

- moving a channel to another channel.
- splitting a channel into two channels at a given point (split Point). The tones above and below a split point go to different channels.

The MIDI Routing mode is operational when playing a MIDI file and when forwarding MIDI data (MIDI Forward mode). The setting of the MIDI channels does not have any influence on the record mode.

- Channel (1-16): displays the channel for which the options below are valid. This channel number and the settings can be changed with the Arrow keys ( < > ).
- Channel Out (1-16): Selects the channel to which the channel is moved.
- Split (ON/OFF): Enables the assignment of a split point. Split Point (sscC - g6): Selects the split point.
- Channel Out Upper (1-16): Notes above and including the split point will be sent to this channel.
- Ch. Out Lower (1-16): Notes below the split point will be sent to this channel.

# 13. System Menu

[Back]: Returns to the main Menu screen.
Sort Files (ON/OFF): Sequencer will sort files and directories alphabetically.
System Real Time Messages (ON/OFF): Activates the System Time environment
Factory Preset: Restores the original factory settings.
Recording Counter Reset: Resets the RECxxxxx.mid number
Update Firmware: Updates the current firmware if a valid FIRMWARE.BIN file is present in the root directory of the SD-card

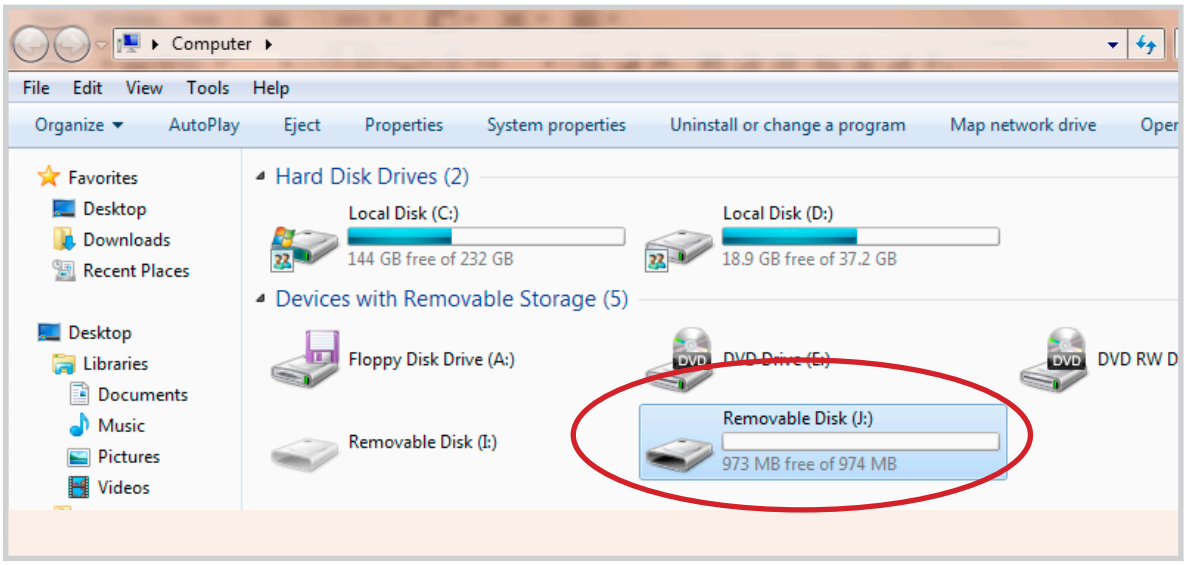
# 14. Editing MIDI

Unless it is intended to edit your Sequencer MIDI files on a personal computer you will not need to know the information contained in this section to use the Sequencer Plus. For some of these operations a software sequencer will be needed that allows you to edit MIDI files.

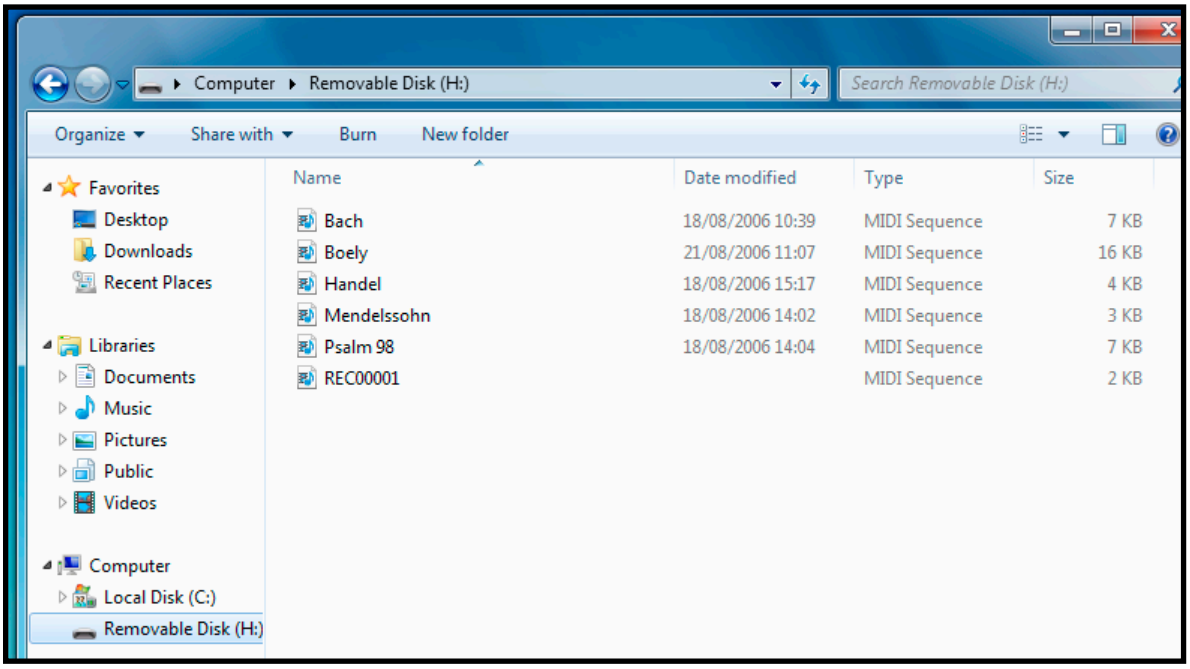
## 14.1. Reading the SD card on a computer

Some computers have an SD card slot so that it is only necessary to plug the card in to be able to read it. On other machines an SD card to USB converter (Shown below) may be required.

The SD card will appear as a Disk drive in Windows® Explorer.




In this case the removable disk (J:) is the SD card. Display the  disk contents then the files may be edited, renamed or deleted using the Windows® file or other software tools. When renaming a file ensure that the .MID suffix is retained or the sequencer will be unable to recognise the file.




Double click on any .MID filename and this should start the Windows® Media Player (if it is the default player) which should play the tune (as a piano piece). The file can be opened with more sophisticated software sequencers that have a wider range of voices and the ability to edit the MIDI file.

## 14.2. Creating a Hymn MIDI file

To create a hymn file

1. Record a verse.
2. Record an introduction (intro.).
3. Select the main Menu screen.
4. Select the Rename file mode.
5. Rename the recording of the intro such, that it begins with an I_ (I stands for Intro). Example: I_SONG1.
6. Rename the recording of the verse such, that it begins with a V_ (V stands for Verse). The text must be the same as the text of the intro. Example: V_SONG1.

Note that steps 4 to 6 can be carried out on a computer as already described. The sequencer uses the old DOS 8.3 naming convention of 8 characters followed by the .MID suffix. If a filename of more that eight characters is created on a computer only the first six characters of the file name will be displayed followed by the ~ character and a number to make the filename unique.

## 14.3. The Playlist

A playlist enables multiple Songs/Hymns to be played in sequence. A directory can only contain one playlist. The playlist could be used to set up a sequnce of Songs/Hymns for a complete church service if required. The following expressions are valid to be used in the playlist:-

| | **Expression:** | **Explanation** |
|---|---|---|
| | ;*comment* | comment is a text description for the use of the programmer. Its is ignored on play back. |
| | *{name}*.MID | Where *{name}* is the name of a .MID file in the same directory that is required to be played |
| | *{name}*.MID,*{x}* | Where *{name}* is the name of a Song/Hymn file and *{x}*is the number of times it is to be played. |
| | *{name}*.MID,*{x},{y}* | Where *{name}* is the name of a Song/Hymn file, *{x}*is the number of times it is to be played and *{y}* is denotes the play back speed as a percentage of the speed of the original recording. |
| | STOP | The playlist stops playing until the Play/Pause key ( ▶/|| ) is pressed. |
| | END | Ends the play list. |

To create a playlist

1. Create a text file with the name playlist.txt on a computer using a text editor (such as Windows Notepad).
2. Type the playlist using the available expressions:
3. Save the text file.
4. Copy the text file to the SD card.

Examples of a Playlists are shown below:-

```
;Sung Eucharist
;Pre service music
BOEL.MID
STOP
;First Hymn
OEH110I.MID
OEH110V.MID,3
STOP
;Kyrie-Inwood
KINW.MID
;Gloria-Powell
GINW.MID
STOP
;Psalm
PSALM148.MID
;Gradual Hymn
OEH107I.MID
OEH107V.MID,4
STOP
;Offertory Hymn
OEH351I.MID
OEH351V.MID,5
STOP
;Sanctus & Benedictus-Inwood
SINW.MID
BIND.MID
STOP
;Agnus Dei-Inwood
STOP
;Recessional Hymn
OEH124I.MID
OEH124.MID,6
;Alleluia and Amen
AMEN124.MID
STOP
;Post ServiceVoluntary
BACH.MID
END
```

When a Hymn has verses where different registrations are used then a different recording must be used for each verse. They can be run in sequence to form a complete hymn although some external editing of the MIDI files may be necessary to get the timing just right. The result for hymn 110 might look like:-

```
;Intro
OEH110_1.MID
;Verses 1,2
OEH110_2.MID,2
;Last verse
OEH110_3.MID
STOP
```

or alternatively the complete Hymn may be recorded in one MIDI file:_

```
OEH110.MID
STOP
```

The comments can be used as a reminder of sequence of events.

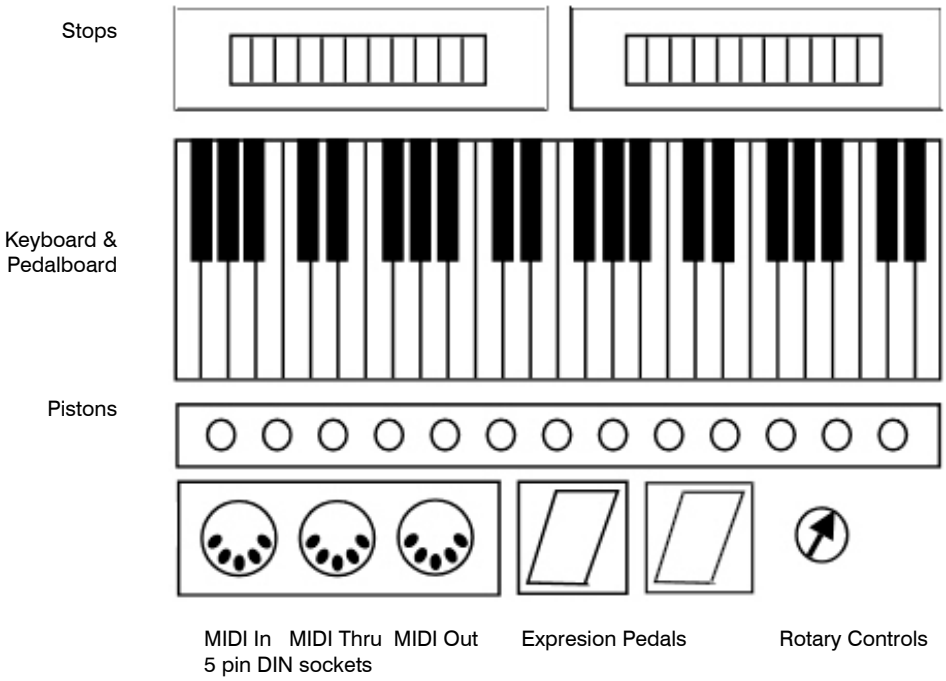
Filenames starting with I_ will not play the associated V_ file when used in a playlist.

## 14.4. MIDI Channels

MIDI can transmit data over 16 channels. MIDI devices can be usually be programmed to transmit or received up data on one or more channels. By default the Makin and Johannus organs, with a standard keyboard layout, transmit MIDI data on the following channels:

| Channel | 1 Manual | 2 Manual | 3 Manual | 4 Manual |
|---|---|---|---|---|
| 1 | Keyboard | Great | Choir | Choir |
| 2 | | Swell | Great | Great |
| 3 | | Pedal | Swell | Swell |
| 4 | | | Pedal | Solo |
| 5 | | | | Pedal |
| 12 | Stops | Stops | Stops | Stops |

# 15. Components Relevant to MIDI




Hardware devices generate electrical signals which are converted to MIDI commands. The Diagram shows the main MIDI hardware components available on an Organ. Control of Reverberation, Overall Volume and memory settings are also MIDI related functions although they may not all be implemented on your MIDI device. Example: Reverberation is not available as a MIDI setting on Makin and Johannus instruments. Note that MIDI functions not recognized by the receiving MIDI device will be ignored if sent.

## 15.1. Sequencer MIDI file format

MIDI has different file formats referred to as MIDI 0,MIDI 1 and MIDI 2 used for the following purposes:-

- 0 - Single multichannel track
- 1 - multiple track with separated channels to play at the same time
- 2 - multiple multichannel tracks that play one by one.

The Sequencer Plus creates MIDI 1 files and can play MIDI 0 and MIDI 1.
When recording the Sequencer collects incoming data and stores it in a binary file on the SD card. Using an program editor it is possible to edit the binary file. Part of a binary file shown below was recorded to show the stops on a Makin 2-18D Organ.

> Warning
>
> Always back up MIDI files before editing.

On a Makin or Johannus Organ the MIDI command that changes a stop is CB xx where

- C is the program change command,
- B is channel 12 and
- xx is the number of the stop

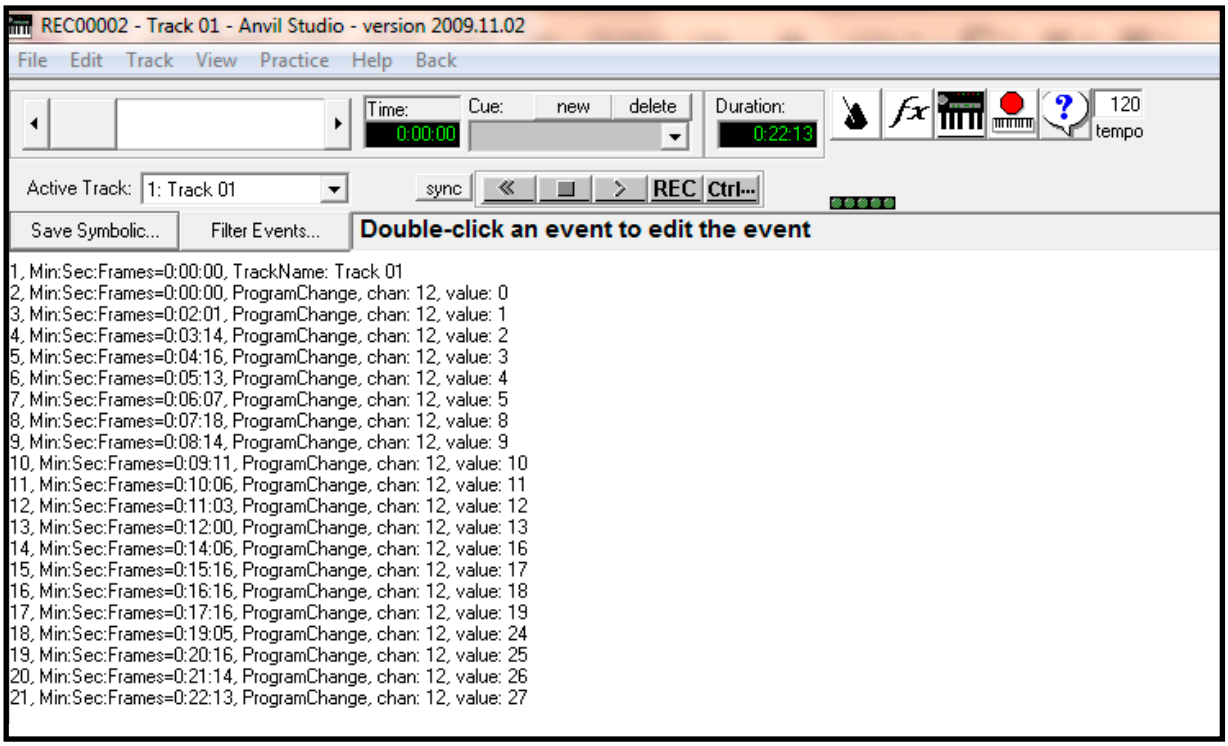
The first CB (shown in red) in the file is followed by 00 which represents the stop number. This is the

```
4D 54 68 64 00 00 00 06 00 01 00 02 00 C0 4D 54 72 6B 00 00 00 0B 00 FF 51 03 07 A0 D0 00
FF 2F 00 4D 54 72 6B 00 00 00 5F 00 FF 03 08 54 72 61 63 6B 20 30 31 00 CB 00 86 15 CB 01
84 22 CB 02 83 18 CB 03 82 58 CB 04 82 3A CB 05 84 07 CB 08 82 55 CB 09 82 54 CB 0A 82
49 CB 0B 82 58 CB 0C 82 51 CB 0D 86 4E CB 10 84 00 CB 11 83 07 CB 12 83 01 CB 13 84 69
CB 18 84 0D CB 19 82 71 CB 1A 82 6B CB 1B 00 FF 2F 00
```

Open Diapason 8 which is known from the order the stops were set. From the information in this file it would be possible to change the registration, of any MIDI file produced, on this instrument. It also follows that given a similar map for another instrument it is possible to convert the MIDI file to play on the other instrument. A good understanding of MIDI commands is required for this technique but there are plenty of web sites and books available that can help.

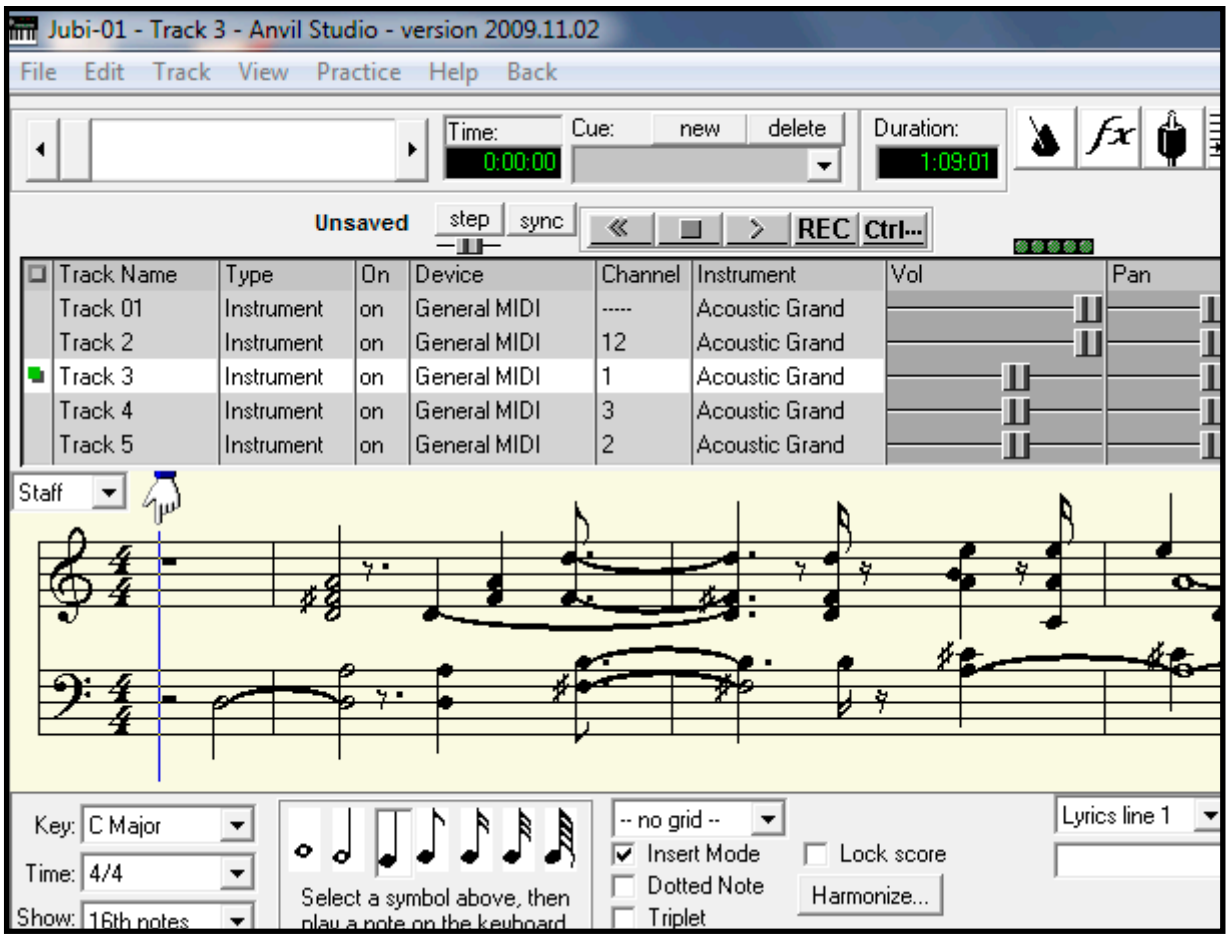
## 15.2. Software Editor/Synthesizer/Sequencer

There are easier ways to edit MIDI files. Most software MIDI Synthesizers will have a plain text editing facility. The text rendering example of the previous file shown below is from Anvil Studio (from www.AnvilStudio.com).


REC00002 - Track 01 - Anvil Studio - version 2009.11.02
File Edit Track View Practice Help Back
Time: 0:00:00
Cue: new delete
Duration: 0:22:13
120 tempo
Active Track: 1: Track 01
sync REC Ctrl...
Save Symbolic... Filter Events...
Double-click an event to edit the event
1, Min:Sec:Frames=0:00:00, TrackName: Track 01
2, Min:Sec:Frames=0:00:00, ProgramChange, chan: 12, value: 0
3, Min:Sec:Frames=0:02:01, ProgramChange, chan: 12, value: 1
4, Min:Sec:Frames=0:03:14, ProgramChange, chan: 12, value: 2
5, Min:Sec:Frames=0:04:16, ProgramChange, chan: 12, value: 3
6, Min:Sec:Frames=0:05:13, ProgramChange, chan: 12, value: 4
7, Min:Sec:Frames=0:06:07, ProgramChange, chan: 12, value: 5
8, Min:Sec:Frames=0:07:18, ProgramChange, chan: 12, value: 8
9, Min:Sec:Frames=0:08:14, ProgramChange, chan: 12, value: 9
10, Min:Sec:Frames=0:09:11, ProgramChange, chan: 12, value: 10
11, Min:Sec:Frames=0:10:06, ProgramChange, chan: 12, value: 11
12, Min:Sec:Frames=0:11:03, ProgramChange, chan: 12, value: 12
13, Min:Sec:Frames=0:12:00, ProgramChange, chan: 12, value: 13
14, Min:Sec:Frames=0:14:06, ProgramChange, chan: 12, value: 16
15, Min:Sec:Frames=0:15:16, ProgramChange, chan: 12, value: 17
16, Min:Sec:Frames=0:16:16, ProgramChange, chan: 12, value: 18
17, Min:Sec:Frames=0:17:16, ProgramChange, chan: 12, value: 19
18, Min:Sec:Frames=0:19:05, ProgramChange, chan: 12, value: 24
19, Min:Sec:Frames=0:20:16, ProgramChange, chan: 12, value: 25
20, Min:Sec:Frames=0:21:14, ProgramChange, chan: 12, value: 26
21, Min:Sec:Frames=0:22:13, ProgramChange, chan: 12, value: 27

Each of the program changes represents a stop drawn. The line can be edited to make whatever changes are necessary. Edited files can be saved on the SD card and played back using the MIDI Sequencer Plus.

Most MIDI editors will also allow the music to be edited which is useful for removing or adding pauses,correcting timing and changing notes.


Jubi-01 - Track 3 - Anvil Studio - version 2009.11.02
File Edit Track View Practice Help Back
Time: 0:00:00
Cue: new delete
Duration: 1:09:01
Unsaved step sync REC Ctrl...
Track Name Type On Device Channel Instrument Vol Pan
Track 01 Instrument on General MIDI ----- Acoustic Grand
Track 2 Instrument on General MIDI 12 Acoustic Grand
Track 3 Instrument on General MIDI 1 Acoustic Grand
Track 4 Instrument on General MIDI 3 Acoustic Grand
Track 5 Instrument on General MIDI 2 Acoustic Grand
Staff
Key: C Major
Time: 4/4
Show: 16th notes
Select a symbol above, then
-- no grid --
Insert Mode
Dotted Note
Triplet
Lock score
Harmonize...
Lyrics line 1

The MIDI file shown above was recorded on a Makin Jubilee organ using the MIDI Sequencer PLUS. Using the AnvilStudio editor, notes on the stave can be edited and MIDI control functions changed.

## 15.3. MIDI Controllers

MIDI controllers are set by MIDI functions. To find out which MIDI functions match control devices on your instrument such as expression pedals and stops; simply record a file using only these functions, making a careful note of the order of operation, then view the file in a MIDI editor.

MIDI controller codes for Makin and Johannus instruments are given in the back of the user handbook for the instrument. To give a guide to their usage some of them are repeated in this manual.

Numbering in MIDI code is usually given in numbers to a base of 16 (Hexadecimal). A Hexadecimal number uses characters 0 to 9 and A to F or a to f to represent a decimal equivalent of 0-15. A hexadecimal number is normally denoted by the number followed by the letter h or preceded by 0x.

### 15.3.1. Control Changes Received on Makin or Johannus instruments

Information can be received by the following MIDI controllers
To change the Volume use MIDI code Bn 07 xx where xx = a value from 00 to 7F and n is the channel number. Use channel 12 ie n=B for control functions.
To change the expression setting use MIDI code Bn 0B xx where xx = a value from 00 to 7F

### 15.3.2. System Exclusive Messages for Makin or Johannus instruments

The SysEx messages all have the same format. The first 7 bytes and the last byte are always the same. Only the value of the 8th byte changes. The message format is:
F0 00 4A 4F 48 41 53 xx F7 where xx is the changeable byte
For all stops off, xx has the value 7F (General Cancel)

### 15.3.3. Sequencer Plus System Real Time Messages (Play/Browse mode)

When the sequencer is in Play/Browse mode and no song is playing yet

1. If a Start (OxFA) or Continue (OxFB) message is received: The file shown on screen will be opened and played from the beginning (analogous to Play/Pause button).
2. If another Start or Continue message is received after the initial start, the song will be paused (like pressing the Play/Pause button).
3. If another Start or Continue message is received: The song will be resumed from the point it was paused (like the Play/Pause button).
4. If a Stop (OxFC) message is received: The Sequencer will stop playing and the file will be closed (like the Stop button).

### 15.3.4. Plus System Real Time Messages (Record mode)

When the sequencer is in Record mode and is not recording yet

1. If a Start (OxFA) message is received: The Sequencer will go into Record Pause (this is also possible by pressing the REC button).
2. If another Start message is received, or a Continue message or MIDI event, recording will start (analogous to the Play/Pause button).
3. If a Stop (OxFC) message is received: The recording will be stopped (like pressing the Stop button).
4. If after a recording a Continue message is received; the sequencer remains in Record Mode. The recorded song will be played back so it can be heard without having to change the sequencer's mode

Notes
The Sequencer can also be set in Record Pause manully with the REC button. When it receives a Start or Continue, it will directly start recording. This way only one Start message is responsible for the start of a recording.

The sequencer ignores Active Sensing (0xFE) and Clocks (0xF8) at its MIDI In port.

# 16. Troubleshooting

If you are having a problem with the MIDI Sequencer Plus and a message is displayed then consult the troubleshooting chart. If this does not resolve your problem then please contact the Making office for advice. For problems with MIDI editing the best source of advice is the internet.

| Troubleshooting Chart | | |
|---|---|---|
| **Message/Problem** | **Meaning/Cause** | **Explanation** |
| | | |
| SD card not found | There is no SD card in the SD card slot. | Insert an SD card. |
| Card locked! | You are trying to make a recording on a write-protected SD card. | The SD card has a slide. Put the slide in the unlocked position. |
| Disk full! | The SD card is full. | Remove some MIDI files or insert an empty SD card. |
| Read error | The file cannot be read. | Replace the file. |
| File not found | The file does not exist or has a faulty reference. | Remove the file or the faulty reference. (If the file has been edited in Windows® then use command mode to check that the filename complies with DOS 8.3 format, Longer filenames are allowed but only 8 characters can be displayed) |
| Maximum record files | The maximum number of record files has been reached. | The maximum is 99999. Rename or remove existing recordings the names of which begin with REC and/or reset Record Counter. |
| End of playlist | You press play while the playlist has reached the end | Go back to the beginning of the playlist using the selector. |
| stop point | You have selected a stop point in the playlist and pressed play. | Select a song. |
| New SD card found reading | The MIDI sequencer is busy reading the SD card. If the reading takes more than a few seconds, there may be a contact problem | Wait until the MIDI sequencer is ready Switch the MIDI sequencer off Remove the SD card and again. Insert the SD card again. Switch the MIDI sequencer ON |
| The stops on the organ do not switch on or the stops are flashing | The connections MIDI IN and MIDI OUT may have been connected to the same device and the MIDI Forward mode is on. The file may have been edited incorrectly. | Switch off the MID Forward mode.<br><br>Check any editing |
| You cannot find certain MIDI files. | The MIDI sequencer may still be in a playlist (the screen shows PL). | Switch off the Playlist mode |
| During playing the stops, the tempo changes or the general volume are not working. | The stops/Instr. , Tempo and/ or Volume modes may be OFF.<br><br>The file may have been edited incorrectly. | Set the mode involved to ON<br><br>Check edited files. |
| MIDI error more than 39 tracks [Press any Key] | Maximum number of tracks is reached | MIDI sequencer does not support more than 39 tracks. |

# 17. System Information

## 17.1. Technical Specification

| Description | Specification |
|---|---|
| | |
| Dimensions (I x w x h) | 190 x 120 x 55 mm (7 3/8 x 2 1/8 x 4 5/8 inch) |
| Weight | 710 grams (1 lb 9 oz) |
| Power | 9 Volt  1 Amp |
| MIDI | In, Out/Thru |
| MIDI play format | MIDI 0 and MIDI 1 |
| MIDI record format | MIDI 1 |
| MIDI cable | 2 x 5 m (2 pieces)  DIN 5 pin connectors |
| SD card | 128 MB |
| Maximum number of MIDI tracks | 39 tracks |
| Wooden stand | Optional |

## 17.2. Factory Settings

| Screen | Mode | Factory Setting |
|---|---|---|
| | Auto Playlist | ON |
| Options | Hymn Mode | ON |
| | Metronome | ON |
| | MIDI Forward | OFF |
| | Repeat | OFF |
| Routing | MIDI Routing | OFF |
| Filter | Stops/Instr | ON |
| | Tempo | ON |
| | Volume | ON |
| Channel ON/OFF | Channel 1-16 | ON |

## 17.3. MIDI Implementation

| Function | Sub Function | Transmitted | Recognized |
|---|---|---|---|
| | | | |
| Channel | | ✓ | ✓ |
| Note Number | | ✓ | ✓ |
| Velocity | Note On | ✓ | ✓ |
| | Note Off | ✓ | ✓ |
| After touch | Key | ✓ | ✓ |
| | Channel | ✓ | ✓ |
| Pitch Bend | | ✓ | ✓ |
| Control Change | | ✓ | ✓ |

| | | | |
|---|---|---|---|
| Program Change | | ✓ | ✓ |
| System Exclusive | | ✓ | ✓ |
| System Common | | × | × |
| System Real Time commands | Clock | ✓ | × |
| | Start | ✓ | ✓ |
| | Stop | ✓ | ✓ |
| | Continue | ✓ | ✓ |
| Aux Messages | All notes off | ✓ | ✓ |
| | Active Sensing | ✓ | × |
| | System Reset | × | × |
| Notes | | ✓ | ✓ |

## 18. Information

If you want more information about your sequencer or on other products supplied by Makin Organs please contact us (write, phone or e-mail).
Makin has an interesting web site with topical information about Makin Organs and ongoing activities.

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